



Top Tier Detergent Gasoline


Presentation to SIGMA

Andrew Buczynsky

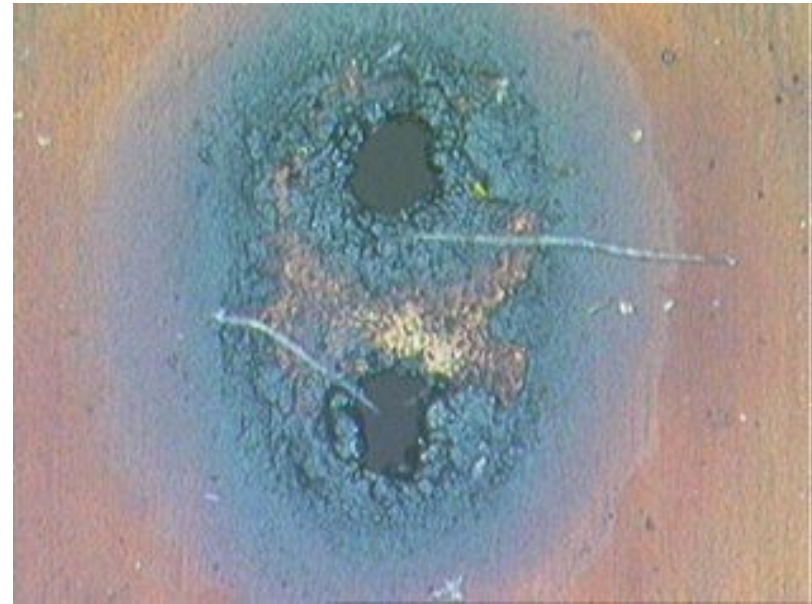
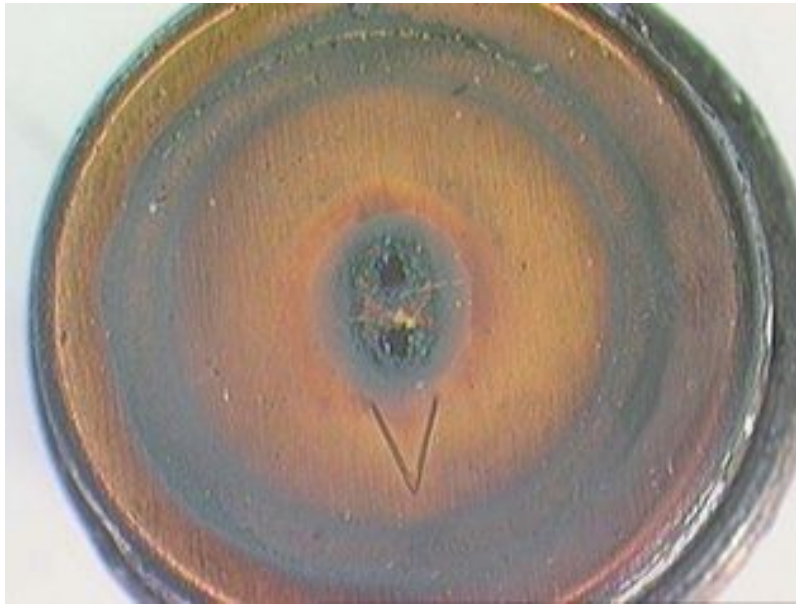
Robert L. Furey

New Orleans - November 13, 2004


Why the concern over engine deposits?

- 
- High fuel injector warranty in certain regions.
 - Problems are misfire codes (MIL turns on) and driveability problems.
 - Typically, problems appear in a region and then disappear.
 - However, some regions are continually problematic.
 - Injector fouling is a critical problem because of the need for tight A/F control.

Deposits on Director Style Injector



Why the concern over engine deposits?

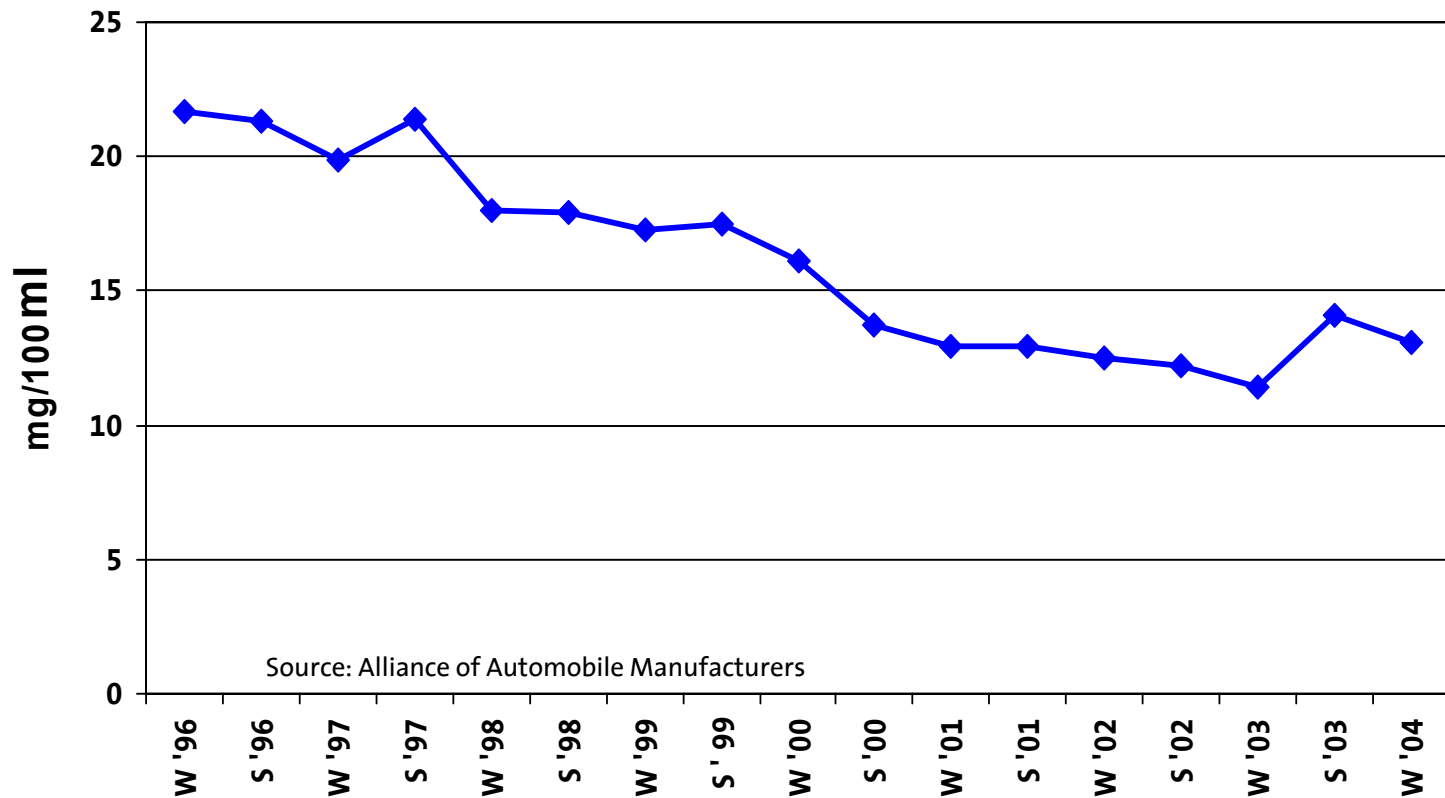
- 
- Intake valve deposits (IVD) can cause cold-start driveability problems
 - Significant percentage of commercial gasolines tested in Ford 2.3-L engine (ASTM D6201) produced IVD much greater than EPA's limit.
 - LAC is not sufficient for many base fuels



What is the connection to fuel?

- Cannot point to a single fuel property, but trends have been noted.
 - Regional nature of the problem suggests that it is fuel related.
 - Field problems have been traced to specific brands of fuel.
 - Average unwashed gum, a rough estimate of deposit control additive content, has dropped about 50% in regular grade since 1996.

A steady decline in additive usage since 1996





Auto companies have expressed concern over engine deposits

- Injector fouling
 - Honda presentations, ASTM June 2002, and API DAP presentation October 2003.
 - GM report, CRC October 2002, and DAP presentation, October 2003.
 - Reports of PFI fouling spurred CRC to develop a program to evaluate gasoline quality.
- Intake valve deposits
 - Ford presentation, ASTM June 2002, and DAP October 2003.



What are future concerns?

- Tier 2 emissions standards
 - Useful life emissions must be met after 10 years or 120,000 miles
 - Low detergency not conducive to meeting these standards because hardware cannot tolerate high levels of deposits.
- Introduction of new technology
 - Direct injection engines will likely require high levels of detergency.



Our Goals

- Reverse the decline in additive treat rates by providing incentives to fuel marketers.
- Encourage marketers who provide high detergency to keep doing it.
 - Gasoline survey data showed that some gasolines are already there.
- Encourage other marketers to increase detergency.
 - Offer chance to differentiate their product.



Why Top Tier Detergent Gasoline?

- It's a **voluntary** program that lets the marketplace decide participation.
- Contains rigorous but achievable standards.
 - CARB limits for IVD and CCD.
 - New fuel injector test.
 - Existing industry valve sticking test -no harm
- Keeps test costs to a minimum.
 - Uses existing data in many cases.
 - Injector test initially run at no cost.



What is the Top Tier test program?

- The test program is a set of tests used to establish the Top Tier additive treat rate.
 - It's analogous to the EPA and CARB additive certification programs.
 - The treat rate established in the specified base fuel applies to all gasoline sold by the marketer.
 - No further testing in any other fuel is required.



Who conducts the test program?

- A test program is typically run by the additive supplier for each product he desires to qualify.
 - The fuel marketer does not have to do any testing.
 - The additive supplier will provide the required data for submission.
 - The additive supplier can provide the same data to several marketers if the same additive is used.



How do I apply for Top Tier status?

- Top Tier is a self-certification program
 - Sponsors do not certify the results.
- (1) Marketer signs the attestation form.
 - Signature by a vice-president or higher.
- (2) Complete the supplementary information page.
 - The additive supplier will provide the information.
- (3) Send the form to sponsor either by regular mail or electronically.



How do I know Top Tier status has been achieved?

- A notification of receipt will be returned electronically stating that the attestation form was received and announcing entrance into the Top Tier Detergent Gasoline program.
 - Rejection will occur only if signature is missing or supplemental information is incomplete.
 - Again, sponsors do not certify or validate the results.



What am I attesting to?

- Test program was valid.
 - Rely on additive supplier.
- Every grade of retail gasoline in all marketing regions will comply with Top Tier standards.
 - Additive treat rate will be at least as high as determined in the test program.
 - Gasoline will not contain metallic additives.
 - Compliance will begin no later than 30 days after signature date on the form.




What am I attesting to?

- Compliance will be maintained for at least one year.
 - Will provide 30 days notice if early termination is desired.
- Public promotion of Top Tier status will not begin until all retail gasoline is compliant.
- Will aid sponsors in obtaining fuel samples for field audits.



What am I attesting to?

- Will not use sponsors names without consent.
 - Stating that gasoline meets standards established by BMW, GM, Honda, and Toyota is allowed.
 - Cannot state that gasoline is recommended by sponsors.
 - Use of sponsors' trademarks is prohibited.
- Will terminate advertisement if requested by sponsors for reasons of non-compliance.




What type of verification of performance will occur?

- Random sampling at retail will be conducted.
 - One instance of a test result not meeting the standards does not constitute non-conformance.
 - A pattern of non-conformance will result in a meeting with sponsors to discuss results.
 - If a marketer refuses to address the findings, he will be requested to stop promotion of Top Tier status.



What are the benefits of attaining Top Tier Detergent Gasoline status?

- Marketer can differentiate himself from the rest of the pack.
- Listing of Top Tier marketers are made available to dealerships and on sponsors' websites.
- Can do direct promotions with dealerships.
- Opportunities for joint marketing with sponsors will become available.
- Increased customer satisfaction



Who are the current Top Tier Detergent Gasoline marketers?

- Those marketers that have made a public announcement are:
 - ChevronTexaco
 - QuikTrip
 - ConocoPhillips



How to contact us

- If you have questions about the Top Tier program, please call us.
 - Andrew Buczynsky
Ph: 248-857-9995
email: Andrew.Buczynsky@gm.com
 - Robert Furey
Ph: 248-857-9591
email: Robert.L.Furey@gm.com